REMARKS/ARGUMENTS

Applicants have affirmed the election of Group I by canceling claims 22-47 without prejudice to prosecute these claims in divisional applications.

Claim 19 has been amended by canceling line 12 et seq., presented as new claim 48.

In paragraph 9 on page 4 of the Official Action, claims 1, 5, 12, and 16 were rejected under 35 U.S.C. 102(b) as being anticipated by Mishima et al. (U.S. Pat. 5,488,418). Applicants respectfully traverse.

"For a prior art reference to anticipate in terms of 35 U.S.C. § 102, every element of the claimed invention must be identically shown in a single reference." Diversitech Corp. v. Century Steps, Inc., 7 U.S.P.Q.2d 1315, 1317 (Fed. Cir. 1988), quoted in In re Bond, 15 U.S.P.Q.2d 1566, 1567 (Fed. Cir. 1990) (vacating and remanding Board holding of anticipation; the elements must be arranged in the reference as in the claim under review, although this is not an *ipsis verbis* test).

Paragraph 9 on page 4 of the Official Action refers to Mishima et al. Figures 26, 28, 31, 34, 50, and 53, and refers to "decoding only the length 17 of the respective variable-length code for the respective DC coefficient ..." and "a code length threshold comparison 30 upon the length of the respective variable-length code for the respective DC coefficient ..." Reference numerals 17 and 30 are found together in Mishima et al. Figures 31 and 34. Reference numeral 17 is also found in Mishima et al. Figures 26 and 28.

It is not seen where Mishima discloses the applicants' step of "decoding only the length of the respective variable-length code for the respective DC coefficient for each of said at least some of the blocks of pixels in order to produce an indication of whether or not the compressed

video sequence includes an edge associated with said each of said at least some of the blocks of pixels; ..." Reference numeral 17 in Mishima, for example, designates a "code length detector" that detects the code lengths of variable-length codes produced by a code converter 16. However, the code length detector 17 is not shown to receive the output of the code converter 16; instead, the code converter 16 is shown to receive the same input signal as the code converter 16. Mishima, col. 10, lines 51-58, indicates that the code length detector 17 detects the length of the variable-length code simultaneously with the encoding of the variable length code by the code converter 16. Therefore, the code length detector 17 does not "decode" the length of any variable-length code.

It is not seen where Mishima discloses the applicants' step of "performing a code length threshold comparison upon the length of the respective variable-length code for the respective DC coefficient for said each of said at least some of the blocks of pixels for producing at least one respective bit indicating whether or not the compressed video sequence includes an edge associated with said each of said at least some of the blocks of pixels." Reference numeral 30 in Mishima, for example, designates a threshold comparator, but this threshold comparator is shown to receive the output of an accumulation adder 19 instead of the output of the code length detector 17. From the written description in Mishima, it is understood that the output of the comparator 30 indicates whether an accumulated total of code lengths causes an overflow over an m-byte boundary or partition used for error-correction encoding. In Mishima FIG. 31 this condition is detected in order to insert a special code when the overflow occurs so there is no symbol change during the decoding process. (See Mishima, col. 14, line 64 to col. 15 line 44,

and col. 26 lines 39-43, and Abstract lines 8-11). Therefore, the threshold comparator 30 in Mishima does not perform a code length threshold comparison upon the length of a variable-length code of a DC coefficient for producing at least one respective bit indicating whether or not the compressed video sequence includes an edge associated with a block of pixels.

Moreover, if the comparator 30 in Mishima would compare the threshold C' to the code length of a variable-length code of a single DC coefficient (rather than an accumulated total of the code lengths for a series of variable-length codes), the output of the comparator 30 would not necessarily indicate whether or not the compressed video sequence includes an edge associated with a block of pixels. The threshold C' is disclosed in Mishima as being set so that the output of the comparator 30 indicates whether an accumulated total of code lengths causes an overflow over an m-byte boundary or partition used for error-correction encoding. One would expect that the threshold C' would be much higher that the maximum code length for a single DC coefficient so that the partition would be large enough to contain at least the code for one DC coefficient. There would be a serious performance problem if the code length of a single DC coefficient would cause overflow over the partition used for error correction. (E.g., the process of moving the variable-length code from one partition to the next, as described in Mishima col. 15, lines 34 to 37, would be inoperative because the variable-length code would never all fit in the next partition.) If the threshold C' is set higher than the maximum code length for the DC coefficient and the comparator would compare the threshold C' to the code length of a variable-length code of a single DC coefficient, then the output of the comparator 30 would not indicate whether or not the compressed video sequence includes an edge associated with a block of pixels.

With reference to the applicants' claim 5, Mishima et al. discloses the use of filters 81, 82, 83, and 84, which Mishima says are band-division and thinning filters. (Mishima, column 25, lines 34-55.) However, these filters 81, 82, 83, 84 are understood to be filtering the blocked video signal in order to extract low or high frequency band signals in respective horizontal and vertical directions. It is not seen where Mishima discloses that these filters are filtering "the respective bits," i.e., the bits that are output from a threshold comparator, as recited in claim 1.

The applicants' claim 12 is distinguished from Mishima for the same reasons given above with respect to applicants' claim 1.

The applicants' claim 16 is distinguished from Mishima for the same reasons given above with respect to applicants' claim 5.

In paragraph 12 on pages 5-6 of the Official Action, claims 10, 11, 20, and 21 were rejected under 35 U.S.C. 103(a) as being unpatentable over Mishima et al. in view of Thomas (U.S. Pat. 6,801,672). Thomas is cited for a teaching of an inspection method with reference to Thomas Figures 2 and 8 to determine orientation of edge for computing an approximate gradient vector of an edge associated with at least one of the pixel blocks. The Official Action concludes that a person of ordinary skill in the art, having both the references of Mishima et al and Thomas before him/her, to exploit the well known gradient vector computational technique as taught by Thomas in the edge detection method of Mishima et al. in order to provide a fast and computationally efficient method of edge detection for block coded video and scene change detection for MPEG video. Applicants respectfully traverse. As set out above with reference to

claim 1, Mishima lacks a disclosure of the two steps recited in the base claims 1 and 12. Thomas fails to supply these missing elements of applicants' claims 10, 11, 20, and 21.

Furthermore, if a person of ordinary skill were given both the references of Mishima et al. and Thomas and told to combine them to perform edge detection for block coded video and scene change detection for MPEG coded video, the person of ordinary skill would not be motivated to practice the applicants' claimed method. Instead, the person of ordinary skill would practice a substantially different method. Thomas teaches that one can compute wavelets that are partial derivatives of smoothed versions of the input signal, and that can be combined to form gradient vectors that can be used to locate edges at a particular scale. (Thomas, col. 6, line 34 to col. 7, lines 14.) Edges are located at points where the modulus (magnitude) of the gradient vector is maximum along a line pointing in the direction of the gradient. Spatially sampled version of the edge gradient modulus (magnitude) and angle are determined from the resulting wavelet coefficients, for each corresponding pixel location, as set out in the equations in Thomas, col. 8, lines 15-40. This edge detection method of Thomas is substantially different from the edge detection method of applicants' claim 1.

If a person of ordinary skill were given Mishima and told to use the method of Thomas in Mishma for edge and scene change detection, the person of ordinary skill would have looked for "edge" and "scene change" in Mishima, and would have found "edge" and "scene change" with reference to Mishima's "Thirteenth Embodiment" in Mishima column 23 line 65 to Mishima column 24 line 47. There, Mishima says: "According to the specific embodiment, for example, in the anticipation of the generated code amount, a case where an edge and a transient coexist in

the block may be detected, and the combination of an HPF and LPF enables the judgment to be done." So a person of ordinary skill, trying to do this, might use the method of Thomas in the generated code amount anticipating /comparing unit 71 so that the output of the field sum/difference blocking circuit is not selected when an edge and a transient coexist in a block. However, the combination of an HPF and LPF, and the Thomas' edge detection method, are each substantially different from and considerably more complex that the applicants' method of claim 1. For example, neither the encoder in Mishima FIG. 50(a) nor the edge detection method of Thomas appears to use a code length decoder or a code length threshold comparator. The edge detection method of Thomas appears to be entirely satisfactory for its intended purpose of generating an edge map or detecting the presence of an edge in a block. Therefore, it is not seen how the applicants' method would have been suggested by or would have resulted from the disclosure in Thomas, either alone or in combination with Mishima.

In view of the above, reconsideration is respectfully requested, and early allowance is earnestly solicited.

Respectfully submitted,

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